

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-7 (canceled)

cl

Claim 8 (previously amended): A light redirecting film comprising a thin optically transparent substrate having individual optical elements of well defined shape on or in the substrate to redistribute light passing through the substrate toward a direction normal to the substrate, the optical elements being quite small in relation to a width and length of the substrate, at least some of the optical elements having a total of three surfaces, at least one of the surfaces being curved and at least one other of the surfaces being planar for redirecting light along two different axes.

Claims 9-19 (canceled)

Claim 20 (previously amended): A light redirecting film comprising a thin optically transparent substrate having a pattern of individual optical elements of well defined shape on or in the substrate to redistribute light passing through the substrate toward a direction normal to the substrate, the optical elements being quite small in relation to a width and length of the substrate, at least some of the optical elements being arranged in groupings across the substrate, at least some of the optical elements in each of the groupings varying in at least one of the following characteristics that collectively produce an average characteristic for

each of the groupings: size, shape, position, depth or height, slope angle, orientation, and density.

Cl
Cont

Claim 21 (original): The film of claim 20 wherein the average characteristic for each of the groupings varies across the substrate.

Claims 22-25 (canceled) ✓

Claim 26 (currently amended): The film of claim ~~22~~ 137 wherein at least some of the optical elements are oriented at different angles across the film.

Claims 27-30 (canceled) ✓

Claim 31 (currently amended): The film of claim ~~22~~ 137 wherein the size of at least some of the optical elements varies across the film.

Claim 32 (currently amended): The film of claim ~~22~~ 137 wherein the density of at least some of the optical elements varies across the film.

Claims 33 and 34 (canceled) ✓

Claim 35 (currently amended): The film of claim ~~22~~ 137 wherein at least some of the optical elements have a pair of oppositely angled sides and a pair of oppositely curved ends.

C1
cont.

Claim 36 (original): The film of claim 35 wherein the oppositely angled sides intersect each other.

Claim 37 (original): The film of claim 35 wherein at least some of the optical elements have a curved top intersecting the oppositely angled sides and oppositely curved ends.

Claim 38 (currently amended): The film of claim ~~22~~ 137 wherein at least some of the optical elements have an angled surface that varies in area across the film.

Claim 39 (canceled) ✓

Claim 40 (currently amended): The film of claim ~~22~~ 137 wherein at least some of the optical elements vary in depth or height across the film.

Claims 41 and 42 (canceled) ✓

Claim 43 (currently amended): The film of claim ~~22~~ 137 wherein the orientation of at least some of the optical elements varies across the film.

Claim 44 (canceled) ✓

Claim 45 (currently amended): The film of claim ~~22~~ 137 wherein at least some of the optical elements have angled surfaces that vary in height or depth across the film.

Cl
Cont

Claim 46 (currently amended): The film of claim ~~22~~ 137 wherein at least some of the optical elements are arranged in groupings across the film, at least some of the optical elements in each of the groupings having at least one different shape characteristic that collectively produces an average shape characteristic for each of the groupings.

Claim 47 (original): The film of claim 46 wherein the average shape characteristic of at least some of the groupings varies across the film.

Claim 48 (original): The film of claim 46 wherein at least some of the optical elements in each of the groupings have a different depth or height that collectively produce an average depth or height characteristic for each of the groupings.

Claim 49 (original): The film of claim 48 wherein the average depth or height characteristic for at least some of the groupings varies across the film.

Claim 50 (original): The film of claim 46 wherein at least some of the optical elements in each of the groupings have a different slope angle that collectively produce an average slope angle for each of the groupings.

Claim 51 (original): The film of claim 50 wherein the average slope angle for each of the groupings varies across the film.

C1
Cont.

Claim 52 (original): The film of claim 46 wherein at least some of the optical elements in each of the groupings have a different orientation that collectively produce an average orientation for each of the groupings.

Claim 53 (original): The film of claim 52 wherein the average orientation for at least some of the groupings varies across the film.

Claim 54 (original): The film of claim 52 wherein at least some of the optical elements in each of the groupings have at least one sloping surface that is planar.

Claim 55 (original): The film of claim 46 wherein at least some of the optical elements in each of the groupings have a different width or length that collectively produce an average width or length for each of the groupings.

Claim 56 (original): The film of claim 55 wherein the average width or length for at least some of the groupings varies across the film.

Claim 57 (canceled) ✓

Claim 58 (currently amended): The film of claim ~~22~~ 137 wherein at least some of the optical elements are oriented at different angles across the substrate for redirecting light along different axes.

Claims 59-61 (canceled) ✓

Claim 62 (currently amended): The film of claim 22 137 wherein at least the one side of the substrate ~~has a light entrance surface that~~ is smooth.

C1
Cont.

Claim 63 (currently amended): The film of claim 22 137 wherein at least the one side of the substrate ~~has a light entrance surface~~ is coated with an optical coating.

Claim 64 (currently amended): The film of claim 22 137 wherein at least the one side of the substrate ~~has a light entrance surface with~~ a matte or texture finish.

Claims 65-96 (canceled) ✓

Claim 97 (previously amended): A light redirecting film system comprising a backlight having deformities that cause light to be emitted in a predetermined light array output distribution from the backlight, and a light redirecting film in close proximity to the backlight, the film having individual optical elements of well defined shape on or in the film that work in conjunction with the deformities of the backlight to produce an optimized output light ray angle distribution from the system, the optical elements being quite small in relation to a width and length of the film.

Claim 98 (previously amended): A light redirecting film system comprising a backlight including a panel surface having a light ray output distribution that varies at different locations on the panel surface, and a light redirecting film in close proximity to the panel surface, the light redirecting film having a pattern of

optical elements of well defined shape on or in the film that varies at different locations on the film to redistribute the light ray output distribution from the different locations on the panel surface toward a direction normal to the film, the optical elements being quite small in relation to a width and length of the film.

C1
CO/H

Claim 99 (original): The system of claim 98 further comprising a liquid crystal display in close proximity to the film, the variations in the pattern of optical elements on the film causing a change in the angle of the light ray output distribution from the panel surface to make the light ray output distribution more acceptable to travel through the liquid crystal display.

Claim 100 (original): The system of claim 98 wherein at least some of the optical elements have at least two different shaped surface perimeters.

Claim 101 (original): The system of claim 98 wherein the optical elements comprise at least one of the following: V grooves, prismatic grooves, and lenticular grooves.

Claim 102 (original): The system of claim 100 wherein the one different shaped surfaces is planar.

Claim 103 (original): The system of claim 102 wherein the other of the different shaped surfaces is curved.

Claim 104 (original): The system of claim 98 wherein at least some of the optical elements overlap each other.

Claim 105 (original): The system of claim 104 wherein at least some of the optical elements intersect each other.

Claim 106 (original): The system of claim 104 wherein at least some of the optical elements interlock each other.

Claim 107 (original): The system of claim 104 wherein at least some of the optical elements are staggered with respect to each other.

Claim 108 (original): The system of claim 98 wherein at least some of the optical elements are oriented at different angles for redirecting light along two different axes.

Claim 109 (original): The system of claim 98 wherein the size of at least some of the optical elements varies across the film.

Claim 110 (original): The system of claim 98 wherein the shape of at least some of the optical elements varies across the film.

Claim 111 (original): The system of claim 98 wherein the height or depth of at least some of the optical elements varies across the film.

Claim 112 (original): The system of claim 98 wherein the position of at least some of the optical elements varies across the film.

Claim 113 (original): The system of claim 98 wherein the density of the optical elements varies across the film.

Claim 114 (original): The system of claim 98 wherein the optical elements are arranged in a pattern that is tailored to redistribute the light ray output distribution of a backlight that receives light from one cold cathode fluorescent light bulb toward a direction normal to the film.

Claim 115 (original): The system of claim 98 wherein the optical elements are arranged in a pattern that is tailored to redistribute the light ray output distribution of a backlight that receives light from two or more cold cathode fluorescent light bulbs toward a direction normal to the film.

Claim 116 (original): The system of claim 98 wherein the optical elements are arranged in a pattern that is tailored to redistribute the light ray output distribution of a backlight that receives light from a single light emitting diode.

Claim 117 (original): The system of claim 98 wherein the optical elements are arranged in a pattern that is tailored to redistribute the light ray output distribution of a backlight that receives light from a plurality of light emitting diodes.

Cl
cont

Claim 118 (original): The system of claim 98 wherein the optical elements are arranged in a pattern that is tailored to redistribute the light ray output distribution of a backlight that receives light from perimeter lighting.

Claim 119 (original): The system of claim 98 wherein the optical elements are arranged in a radial type pattern that is tailored to redistribute the light ray output distribution of a backlight that is corner lit.

Claim 120 (original): The system of claim 98 wherein the optical elements are arranged in a radial type pattern that is tailored to redistribute the light ray output distribution of a backlight that is lighted by a single focused light source.

Claim 121 (original): The system of claim 120 wherein the light source is a light emitting diode.

Claim 122 (previously amended): A reflective liquid crystal display and a light redirecting film in close proximity to the reflective liquid crystal display, the light redirecting film having a pattern of individual optical elements of well defined shape on or in the film to increase the brightness of the reflective liquid crystal

display, the optical elements being quite small in relation to a width and length of the film, at least some of the optical elements varying in at least one of the following characteristics: size, shape, position, slope angle, height or depth, pattern, orientation and density.

Cl
cont.

Claim 123 (previously amended): A transreflective liquid crystal display and a light redirecting film in close proximity to the transreflective liquid crystal display, the light redirecting film having a pattern of individual optical elements of well defined shape on or in the film to increase the brightness of the transreflective liquid crystal display, the optical elements being quite small in relation to a width and length of the film, at least some of the optical elements varying in at least one of the following characteristics: size, shape, position, slope angle, height or depth, pattern, orientation and density.

Claim 124 (previously amended): A method of selecting a light redirecting film for a particular application comprising the steps of providing a length of the film having a repeating pattern of optical deformities of well defined shape on or in the film that varies along the length of the pattern, the optical elements being quite small in relation to a width and length of the film, selecting an area of the pattern that best suits a particular application, and removing the selected area from the length of film.

Claim 125 (original): The method of claim 124 wherein the selected area is die cut from the length of film.

CI
cont.
Claim 126 (original): The system of claim 124 wherein the length of film comprises a roll of the film from which the selected area is removed.

Claim 127 (previously amended): A method of selecting a light redirecting film for a particular application comprising the steps of providing a length of the film having a pattern of optical deformities of well defined shape on or in the film that varies along the length of the pattern, the optical elements being quite small in relation to a width and length of the film, selecting an area of the pattern that best suits a particular application, and removing the selected area from the length of film.

Claims 128-136 (canceled) /

Claim 137 (new): A light redirecting film comprising a thin optically transparent substrate having opposite sides, individual optical elements of well defined shape on or in the substrate to redistribute at least some light entering one side and exiting the other side toward a direction normal to the substrate, the optical elements being quite small in relation to a width and length of the substrate, at least some of the optical elements having at least one curved surface and at least one planar surface for redistributing light along two different axes, both

C1
Cont.

surfaces of the optical elements intersecting each other and both surfaces of the optical elements intersecting the substrate or another optical element, the optical elements overlapping, intersecting or interlocking each other such that the optical elements substantially cover at least one of the sides of the substrate.

Claim 138 (new): The film of claim 137 wherein the intersection of both surfaces of the optical elements forms a ridge having ends that intersect the substrate or another optical element where the ridge ends.

Claim 139 (new): The film of claim 138 wherein at least one end of the ridge of at least some of the optical elements intersects another optical element.

Claim 140 (new): The film of claim 138 wherein at least one end of the ridge of at least some of the optical elements intersects the substrate.

Claim 141 (new): The film of claim 138 wherein the ridge of the optical elements is in a single plane.

Claim 142 (new): The film of claim 137 wherein at least some of the optical elements are on or in the one side, the other side or both sides of the substrate.

Claim 143 (new): The film of claim 137 wherein the curved surface of at least some of the optical elements intersects the substrate.

Claim 144 (new): The film of claim 137 wherein the optical elements randomly overlap, intersect or interlock each other.

C1
cont.

Claim 145 (new): The film of claim 137 wherein at least some of the optical elements intersect the substrate at different angles.

Claim 146 (new): The film of claim 137 wherein the ratio of the planar surface to the curved surface of the optical elements is selected to produce a desired viewing angle.

Claim 147 (new): The film of claim 137 wherein the light that enters the one side of the substrate is received from a backlight, and at least some of the optical elements differ in size, shape, angle or orientation to redistribute more of the light emitted by the backlight in a desired viewing angle.

Claim 148 (new): A light redirecting film comprising a thin optically transparent substrate having opposite sides, individual optical elements of well defined shape on or in the substrate for redirecting at least some light passing through one side and out the other side in a predetermined beam pattern, the optical elements being quite small in relation to a width and length of the substrate, at least some of the optical elements having at least two sloping surfaces that intersect each other to form a ridge having ends that intersect the substrate or another optical

element where the ridge ends, the optical elements overlapping, intersecting or interlocking each other such that the optical elements substantially cover at least one of the sides of the substrate.

C1
CONT.

Claim 149 (new): The film of claim 148 wherein at least some of the optical elements only have one ridge.

Claim 150 (new): The film of claim 148 wherein the ridge has a maximum height intermediate the ends of the ridge.

Claim 151 (new): The film of claim 148 wherein the ridge has a maximum depth intermediate the ends of the ridge.

Claim 152 (new): The film of claim 148 wherein at least some of the optical elements are on or in the one side, the other side or both sides of the substrate.

Claim 153 (new): The film of claim 148 wherein at least some of the optical elements have at least one planar surface and at least one curved surface.

Claim 154 (new): The film of claim 148 wherein at least some of the optical elements have at least two planar surfaces.

Claim 155 (new): The film of claim 148 wherein at least some of the optical elements have at least two curved surfaces.

CI
COAT.
Claim 156 (new): The film of claim 148 wherein at least some of the optical elements have at least two sloping surfaces that intersect the substrate or another optical element.

Claim 157 (new): A light redirecting film comprising a thin optically transparent substrate having opposite sides, individual optical elements of well defined shape on or in the substrate for redistributing at least some light entering one side and exiting the other side toward a direction normal to the substrate, the optical elements being quite small in relation to a width and length of the substrate, at least some of the optical elements having only two surfaces, one of the surfaces being curved and the other surface being planar for redirecting light along two different axes, both surfaces of the optical elements intersecting each other to form a ridge with ends and both surfaces of the optical elements intersecting the substrate or another optical element, the optical elements overlapping, intersecting or interlocking each other such that the optical elements substantially cover at least one of the sides of the substrate.

Claim 158 (new): The film of claim 157 wherein at least some of the optical elements are on or in the one side, the other side or both sides of the substrate.

Claim 159 (new): The film of claim 157 wherein the curved surface of at least some of the optical elements intersects the substrate.

Claim 160 (new): The film of claim 157 wherein the ridge of at least some of the optical elements is in a single plane.

Claim 161 (new): The film of claim 157 wherein the ends of the ridge intersect the substrate or other optical elements where the ridge ends.

Claim 162 (new): The film of claim 161 wherein at least one end of the ridge of at least some of the optical elements intersects another optical element.

Claim 163 (new): The film of claim 157 wherein the optical elements randomly overlap, intersect or interlock each other.

Claim 164 (new): The film of claim 157 wherein at least some of the optical elements or the optical element surfaces are rotated or intersect the substrate at different angles.

Claim 165 (new): The film of claim 157 wherein the ratio of the planar and curved surfaces of the optical elements is selected to produce a desired viewing angle.

Claim 166 (new): The film of claim 157 wherein the curvature of the curved surface of the optical elements is selected to produce a desired viewing angle.

Cl
cont.

Claim 167 (new): A light redirecting film comprising a thin optically transparent substrate having opposite sides, individual optical elements of well defined shape on or in the substrate to redistribute at least some light entering one side and exiting the other side toward a direction normal to the substrate, the optical elements being quite small in relation to a width and length of the substrate, at least some of the optical elements having at least two sloping surfaces that intersect each other to form a ridge having ends, the ridge of at least some of the optical elements being in generally the same direction, the optical elements overlapping, intersecting or interlocking each other such that the optical elements substantially cover at least one of the sides of the substrate.

Claim 168 (new): The film of claim 167 wherein the optical elements randomly overlap, intersect or interlock each other.

Claim 169 (new): The film of claim 167 wherein at least some of the optical elements are on or in the one side, the other side or both sides of the substrate.

Claim 170 (new): The film of claim 167 wherein the ridge of at least some of the optical elements is in the same plane.

Cl
(6A)

Claim 171 (new): A light redirecting film comprising a thin optically transparent substrate having opposite sides, individual optical elements of well defined shape on or in the substrate to redistribute at least some light entering one side and exiting the other side toward a direction normal to the substrate, at least some of the optical elements having a greater length than width, the optical elements being quite small in relation to a width and length of the substrate, at least some of the optical elements having at least two sloping surfaces that intersect each other to form a ridge with end points, the ridge of at least some of the optical elements being generally parallel to the length direction of the optical elements.

Claim 172 (new): The film of claim 171 wherein at least some of the optical elements overlap, intersect or interlock each other.

Claim 173 (new): The film of claim 171 wherein the optical elements overlap, intersect or interlock each other to substantially cover at least one of the sides of the substrate.

Claim 174 (new): The film of claim 173 wherein the optical elements randomly overlap, intersect or interlock each other.

Claim 175 (new): The film of claim 171 wherein at least some of the optical elements are on or in the one side, the other side or both sides of the substrate.

C1
cont.

Claim 176 (new): A light redirecting film comprising a thin optically transparent substrate having opposite sides, individual optical elements of well defined shape on or in the substrate to redistribute at least some light entering one side and exiting the other side to increase brightness in a direction normal to the plane of the film, the increase in brightness being greater along one axis of the film than along another axis of the film, the optical elements being quite small in relation to a width and length of the substrate, at least some of the optical elements having at least two sloping surfaces, both sloping surfaces of the optical elements intersecting each other to form a ridge with ends and both sloping surfaces of the optical elements intersecting the substrate or another optical element.

Claim 177 (new): The film of claim 176 which comprises two layers of the film that are rotated with respect to each other.

Claim 178 (new): An optical assembly comprising at least a backlight, a display and one layer of light redirecting film between the backlight and the display, the light redirecting film comprising a thin optically transparent substrate having opposite sides, individual optical elements of well defined shape on or in the substrate for redirecting at least some light passing through one side and out the other side in a predetermined beam pattern, the optical elements being quite small in relation to a width and length of the substrate, at least some of the optical elements having at least two sloping surfaces that intersect each other to form a ridge having ends that intersect the substrate or another optical element

where the ridge ends, the optical elements overlapping, intersecting or interlocking each other such that the optical elements substantially cover at least one of the sides of the substrate,

C1
Cont.

Claim 179 (new): The assembly of claim 178 wherein at least some of the optical elements have at least one planar surface and at least one curved surface.

Claim 180 (new): The assembly of claim 178 wherein at least some of the optical elements have at least two planar surfaces.

Claim 181 (new): The assembly of claim 178 wherein at least two layers of the light directing film are between the backlight and the display, the two layers of the light redirecting film being rotated with respect to one another.

Claim 182 (new): The assembly of claim 178 wherein the optical elements randomly overlap, intersect or interlock each other.

Claim 183 (new): An optical assembly comprising at least a backlight, a display and two layers of light redirecting film between the backlight and the display, each layer of the light redirecting film comprising a thin optically transparent substrate having opposite sides, individual optical elements of well defined shape on or in the substrate to redistribute at least some light entering one side and exiting the other side to increase brightness in a direction normal to the plane of

Cl
cont

the film, the optical elements being quite small in relation to a width and length of the substrate, at least some of the optical elements having at least two sloping surfaces that intersect each other to form a ridge with ends and both surfaces of the optical elements intersecting the substrate or another optical element, the two layers of the light redirecting film being rotated with respect to one another.

Claim 184 (new): The assembly of claim 183 wherein the optical elements overlap, intersect or interlock each other to substantially cover at least one of the sides of the substrate of each layer of the film.

Claim 185 (new): The assembly of claim 184 wherein the optical elements randomly overlap, intersect or interlock each other.

Claim 186 (new): The assembly of claim 183 wherein at least some of the optical elements are on or in the one side, the other side or both sides of the substrate of each layer of the film.

Claim 187 (new): An optical assembly comprising at least a backlight, a display and one layer of light redirecting film between the backlight and the display, the light redirecting film comprising a thin optically transparent substrate having opposite sides, individual optical elements of well defined shape on or in the substrate to redistribute at least some light entering one side and exiting the other side to increase brightness in a direction normal to the plane of the film, the

optical elements being quite small in relation to a width and length of the substrate, at least some of the optical elements having at least two sloping surfaces that intersect each other to form a ridge with ends and both surfaces of the optical elements intersecting the substrate or another optical element, the optical elements being randomized in placement, size, angle or orientation to produce at least one of the following effects: reduce moiré or interference effects within the system, soften, mask or break up the image of the backlight or another component when viewed through the display, or diffuse the light distribution within the system.

Claim 188 (new): The system of claim 187 wherein at least some of the optical elements are on or in the one side, the other side or both sides of the substrate.
